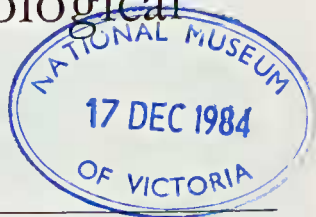


Australian Entomological Magazine

Aust. ent. Mag.



Volume 11, Parts 4, 5

October, 1984

THE NEUROPTERA OF BARROW AND NEARBY ISLANDS OFF THE WEST COAST OF WESTERN AUSTRALIA

By C. N. Smithers

The Australian Museum, College St., Sydney

Abstract

Sixteen species of Neuroptera are listed from Barrow and Montebello Islands off the northwest coast of Western Australia. These include two coniopterygids, one of which is named, one new genus and species of berothid and seven species of chrysopids, of which two are new records for the area.

Five myrmeleontids are listed, of which two are probably new species, two are new records for the islands and the fifth probably a synonym of one of the new records from Barrow Island. The single species of ascalaphid is a new species.

Introduction

This paper deals with Neuroptera mainly collected by W. H. Butler and the author between 1st and 18th May, 1982 and by W. H. Butler and H. Heatwole in February, 1977 on Barrow and nearby smaller islands and on the Montebellos and Lowendals. These islands lie off the northwest coast of Western Australia between 20° and 21°S and 115° and 116°E. Descriptions of these arid islands, especially Barrow, which is by far the largest, can be found in Serventy and Marshall (1964), Butler (1970, 1975, 1975a) and Burbidge and Main (1971). The Montebellos have been described by Montague (1914). Recent detailed vegetation studies have been carried out on Barrow by Buckley (in press). There appear to be no records of Neuroptera from these islands other than a few records of Myrmeleontidae and Chrysopidae by Kimmins (1955) and records of Chrysopidae by New (1980). The material includes several new species and most of the additional material of described species represents significant new distribution records. These are marked with an asterisk (*). The material will be deposited in the Western Australian Museum.

Coniopterygidae

Only two specimens of coniopterygids were collected, both beaten from *Acacia coriacea* DC. One is a described species (*Heteroconis nigripennis* Meinander) and the other, named here, was described and illustrated by Meinander (1972) but not formally named. The present material is the first from Barrow Island and represents a considerable extension of known range for the two species.

Cryptosceneae evansorum sp.n.

Cryptosceneae sp. 1. Meinander 1975. *Acta. zool. fenn.* 136: 105, fig. 54.

TYPES. WESTERN AUSTRALIA: 1 ♀ (holotype), Barrow Island, 12.v.1982, C. N. Smithers (in Western Australian Museum). 1 ♀ (paratype), south west Australia, x.1966, J. W. and F. Evans. The latter specimen is that described and illustrated and referred to as "*Cryptosceneae* sp. 1" in Meinander (1972), (now in Australian Museum, Sydney).

FEMALE

Coloration (in alcohol): Head dark brown except for a paler area across front of head behind antennae, but in front of occipital region, which is extended forward between antennae to about half way to labrum, narrowing anteriorly. Eyes black. Scape, pedicel and about nine most distal flagellar segments dark brown; remaining flagellar segments pale brown. Four basal maxillary palp segments dark brown on outer side, pale on inner; fifth segment mostly pale. Legs brown, femora slightly darker than tibiae. Fore wings (Meinander 1972, fig. 54B) greyish, darker in marginal cells of which the veins are pale-bordered. Contrast between colour of these cells and rest of wing greater than suggested in Meinander's figure (in both known specimens). Hind wings paler than fore wings. Abdomen pale.

Morphology: Antennae 29-31 segmented. Scape widest three-quarters from base. Flagellar segments somewhat longer towards distal end of antennae than nearer base. Antennae about 1.6 mm. Fore wings with all longitudinal veins and branches setose for most of length. Hind wing veins glabrous except for a few setae near distal end of Sc, Sc₂ and R₂₊₃. Marginal setae strongly developed, especially on hind wing. Genitalia simple, gonapophyses laterales fairly large (Meinander 1972, fig. 54A). Bursa copulatrix strongly curved, dorso-posteriorly wide and narrowing anteriorly into a downwardly, then upwardly, curved elongation.

DISCUSSION

Meinander (1972) described but did not name a female from southwest Australia, referring to it as "*Cryptosceneae* sp. 1". The female described here from Barrow Island is clearly conspecific with it. This is the only species of *Cryptosceneae* Enderlein in which the longitudinal veins and their branches in the fore wing are setose for their whole length. The other species, of which there are three recorded from Australia and one from New Guinea, have fewer setae. In none of them are the wings as dark as in *C. evansorum* nor the cells near the wing margins so markedly darker than the rest of the wing.

In *C. evansorum* the fifth segment of the maxillary palp is conspicuously and characteristically paler than in the other species. The Barrow Island specimen represents a considerable northward extension of known range.

**Heteroconis nigripennis* Meinander

1 ♀, ex *Acacia coriacea*, Barrow Island, 12.v.1982, C. N. Smithers.

Described from "South west Australia", this species has been recorded from Nedlands (Western Australia), Brisbane and Roma (Queensland), 16 km E Bathurst and Earlwood (New South Wales) and Bright, Tallangatta and Tynong (Victoria) (Meinander 1972). The Barrow Island material represents a considerable extension of known range in the west.

Berothidae

Only one specimen of this family was collected. It represents an interesting and remarkable new genus related to *Stenobiella* Tillyard.

Barrowiella gen. nov.

Belonging to the Berothidae with wings elongate and narrow as in *Stenobiella*. Hind wing with two crossveins behind R_1 , one of which meets R_{2+3} and the other R_2 after separation from R_3 . A distinct gradate series of six veins in distal half of hind wing. Hind wing lacks all crossveins in basal half except for a somewhat evanescent one between stem of Rs and M.

Type species: *Barrowiella butleri* sp. n.

In general appearance *Barrowiella* is similar to *Stenobiella*, owing to the remarkably elongated, narrow wings. The fore wing venation differs in that in *Barrowiella* the two anterior crossveins of the gradate series are opposite each other, basad of the separation of R_2 and R_3 . The venation of the hind wings is quite distinctive in that there is a complete series of gradate veins in the distal half of the wing. In *Stenobiella* there are at most four and these are not arranged in a definite gradate series. In *Barrowiella* all crossveins in the basal half are lacking except for that between Rs and M and even this is somewhat evanescent. In *S. pulla* Kimmins there are at least two and in *S. gallardi* Tillyard and *S. hirsutissima* Tillyard at least three such crossveins. On the other hand there is a second well developed crossvein between R_1 and R_{2+3} which is absent from all known species of *Stenobiella*.

Barrowiella butleri sp.n.

(Figs 1-6)

TYPE. WESTERN AUSTRALIA: 1 ♂ (holotype), Barrow Island, 4.v.1982, W. H. Butler (in Western Australian Museum).

MALE

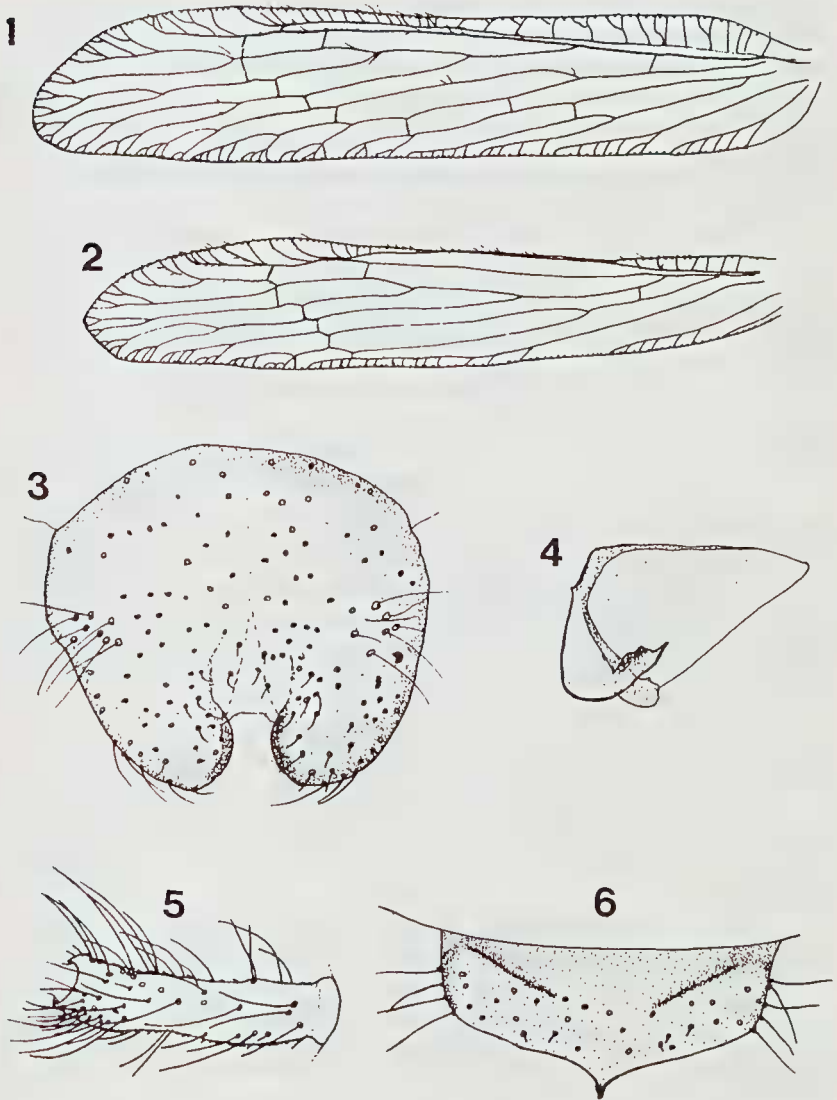
Coloration (in alcohol): Head dorsally with a trilobed grey mark between the temporal sutures, the middle lobe on the median suture reaching as far forward as half way to the level of the antenna bases. Elsewhere top of head

pale brown, speckled with grey, dorsally laterad of the temporal sutures mottled grey. Head creamy yellow on sides behind eyes and ventrally. Antennae (incomplete) brown. Eyes grey. Prothoracic notum brown, a little darker around margin. Mesonotum creamy yellow, brown along sutures, with irregular grey patches near wing bases and a few small brown alveolar spots in cream areas. Scutellum grey with reddish suffusion. Metanotum as mesonotum but smaller. Meso- and metathoracic pleura reddish brown with a transverse creamy yellow crescentic mark. Coxae and femora dark reddish brown. Tibiae very pale brown, speckled brown. Tarsal segments pale, each apically brown giving a banded appearance to the tarsi. Fore wings (Fig. 1) hyaline, faintly tinted with brown. Abdomen reddish brown with creamy yellow, irregular areas.

Morphology: Length of body: 5.5 mm. Tubercles on head roughly triangular with about twelve stout setae. Median suture evanescent about half way to antenna bases. Temporal sutures evanescent between tubercles and compound eyes. Scape (Fig. 5) very long, a little wider at distal end than at proximal end; strongly setose. Pedicel and flagellar segments with distinct whorls of setae.

Fore wings (Fig. 1) very narrow, with anterior and posterior margins almost parallel for much of their lengths. Trichosors present around margin. Costal cell broadened near base; several costal crossveins branched. Sc curves towards R_1 at distal end and almost reaches it but is joined to R_1 by a minute crossvein before curving towards costa. Crossveins in pterostigmal area mostly branched. R_2 and R_3 separate opposite pterostigma distal to the minute Sc- R_1 crossvein. Two crossveins between R_1 and R_{2+3} , that belonging to the gradate series just basad of the separation of R_2 from R_3 and the other about a third of distance between separation of R_{2+3} from R_4 and the separation of R_2 from R_3 . Crossvein between R_{2+3} and R_4 (second in the gradate series) opposite that between R_1 and R_{2+3} . Six crossveins in the gradate series. A crossvein between R and M near wing base (basad of origin of Rs), one in addition to that of the gradate series between M and Cu_1 and one between Cua and Cu_2 . No crossveins near wing base between Cu_2 and 1A.

Hind wings (Fig. 2) elongate. Trichosors present. Sc thickened and approaching R_1 very closely towards distal end but not fusing with it. Gradate series as in fore wing but distal vein between R_1 and branches of Rs is distal to separation of R_2 from R_3 and so does not join the stem of R_{2+3} but joins R_2 separated from crossvein between R_3 and R_4 by basal part of cell R_2 . As in fore wing, a second more basal crossvein occurs between R_1 and R_{2+3} . Crossvein between R and M near wing base arises from Rs not stem of R owing to more basal origin of Rs. Basal half of wing lacks other crossveins.



Figs 1-6. *Barrowiella butleri* gen. et sp. n. ♂: (1) fore wing; (2) hind wing; (3) ninth and tenth tergites; (4) genital sclerites; (5) scape; (6) ninth sternite.

Abdominal sternites heavily sclerotized, tergites basad of eighth less so. Ninth and tenth tergites (Fig. 3, dorsal) in form of a broad sclerotized plate with medially emarginate posterior border. Inner edges and ventral side of lobes rugose. Ninth sternite (Fig. 6) transverse with hind margin bearing a small, median, posteriorly directed well sclerotized projection. Ninth and tenth tergites and ninth sternite clothed with microtrichia in addition to setae indicated in figures. Setae easily lost in alcohol so that in many cases the positions are indicated only by alveolae. Genital sclerites with strongly sclerotized tenth sternite and apically free, and lightly sclerotized spinasternum (Fig. 4, left lateral). Coxopodites (terminology of Acker 1960) in form of two narrow elongate sclerites, each lying above and parallel with a lobe like paramere, and joined in midline by thin membrane. Spinasternum and parameres strongly laterally compressed so as to form thin, dorsoventral plates.

Barrowiella butleri is the only berothid so far known from Barrow Island.

Chrysopidae

Kimmins (1955) recorded three species of chrysopids from the Montebellos and New (1980), in a revision of the Australian Chrysopidae, recorded four species from Barrow Island and the Montebellos. The two recent collections include five species of which two have not previously been recorded from these islands. Six identifiable species are now known from the two island groups; a summary of the records is presented here.

Species represented in the recent collections:—

**Italochrysa insignis* (Walker)

1 ♂, Barrow Island, 12.v.1982, W. H. Butler.

This is a large common species, widespread in Australia. There are a few records in New (1980) from mainland Western Australia. New (in press) has described the egg and first instar larva of this species which he suspects lives in ants' nests.

Chrysopa ramburi Schneider

1 ♀, Barrow Island, 12.v.1982, W. H. Butler.

New (1980) repeats Kimmins' (1955) record of this species from Hermite (Montebellos) and records it from Barrow Island. It is a very widespread species in Australia and occurs in Malaysia, Timor and much of Micronesia.

Chrysopa singata Schneider

1 specimen, ex *Eucalyptus* sp., Barrow Island, 3.ii.1977, H. Heatwole and W. H. Butler.

New (1980) has already recorded this species from Barrow Island. It is common and widespread in Australia.

**Chrysopa otalatis* Banks

1 ♂, 2 ♀, Barrow Island, 8.v.1982, C. N. Smithers.

C. otalatis has been recorded only from a few localities in Queensland. Its occurrence on Barrow Island suggests that it may have a wider distribution.

Chrysopa sp.

1 specimen, ex *Eucalyptus* sp., Barrow Island, 19.ii.1977, H. Heatwole and W. H. Butler.

The specimen is too damaged for determination but is of a fairly small species.

Species not represented in present material:—

Chrysopa eremita Kimmins

This species is still known only from the type series, which came from Hermite Island, Montebellos.

Calochrysa extranea (Esben-Petersen)

New (1980) repeats Kimmins' (1955) record of this species from the Montebellos (on upper deck of "Campania"). It is a widespread species but has not yet been taken on Barrow Island.

Myrmeleontidae

The available material includes four species, two of which are undescribed. As Dr T. R. New is currently reviewing the Australian members of this family and the Ascalaphidae, the material has been submitted to him for inclusion in the revision. I am grateful to him for permission to include his identifications in these families in this paper.

Bandidus sp.n. near *pulchellus* Esben-Petersen

2 specimens, ex *Triodia pungens*, Barrow Island, 10.ii.1977, H. Heatwole and W. H. Butler. 2 specimens, same locality, no date, H. Heatwole and W. H. Butler.

Bandidus sp.

1 specimen, Boodie Island, 6.v.1981, W. H. Butler.

**Heoclisis fulvifusa* Kimmins

2 specimens, in building, Wapet Camp, Barrow Island, 12.ii.1977, H. Heatwole and W. H. Butler. 1 specimen, same locality, 8.ii.1977, H. Heatwole and W. H. Butler.

Eophanes falcata Kimmins

This species was described by Kimmins (1955) from Hermite and Trimouille in the Montebellos. New (pers. comm.) has pointed out that this species is probably a synonym of *Formicaleon distinctus* Banks, recorded below from Barrow Island.

**Formicaleon distinctus* Banks

1 specimen, Barrow Island, W. H. Butler. 3 specimens, flying under rock overhang with sandy floor, Barrow Island, 8.iv.1982, C. N. Smithers.

This species was very common under rock overhangs. At least twenty specimens were present, flying during the day under the overhang where the

three specimens were collected. The net clearly disturbed the others which retreated into the innermost, low part of the cavity below the overhang.

Ascalaphidae

Only one species of this family has been collected from the islands but it appears to be fairly common.

Suhpalacsa sp.

4 specimens, Barrow Island, ii.1977, H. Heatwole and W. H. Butler. 1 specimen, Barrow Island, 12.ii.1977, H. Heatwole and W. H. Butler. 2 specimens, Barrow Island, 6.v.1982, C. N. Smithers.

Acknowledgements

I would like to thank the Western Australian Petroleum Co. Ltd. for providing transport between Perth and the islands and accommodation, transport and laboratory facilities on Barrow Island, Western Australian Wildlife Authority and the Department of Fisheries and Wildlife for permission to work on Barrow, Mr W. H. Butler for his valuable assistance in the field and Dr H. Heatwole and Mr Butler for the opportunity to study their material. Dr T. R. New kindly provided identifications of Myrmeleontidae and Ascalaphidae for inclusion in this paper. Dr T. Houston kindly allowed me to see the collections of the Western Australian Museum in connection with the study of the Barrow Island material.

References

- Acker, T. S., 1960. The comparative morphology of the male terminalia of Neuroptera (Insecta). *Microentomology* 24: 25-84.
- Buckley, R. C. (in press): The vegetation of Barrow Island W.A. *J. R. Soc. W.A.*
- Burbidge, A. A. and Main, A. R., 1971. Report on a visit of inspection to Barrow Island, November 1969. *W. Aust. Dep. Fish and Fauna Rep.* 8: 1-26.
- Butler, W. H., 1970. A summary of the vertebrate fauna of Barrow Island, W.A. *West. Aust. Nat.* 11(7): 149-160.
- Butler, W. H., 1975. Additions to the fauna of Barrow Island, W.A. *West. Aust. Nat.* 13(4): 78-80.
- Butler, W. H., 1975a. *Barrow Island*. Western Australian Petroleum Co. Ltd., Perth.
- Kimmins, D. E., 1955. Neuroptera from the Monte Bello Islands, 1952. *Proc. Linn. Soc. Lond.* 165(2): 128-131, 2 figs.
- Meinander, M., 1969. The genus *Heteroconis* Enderlein 1905 (Neuroptera, Coniopterygidae). *Notulae Ent.* 49: 49-68, 70 figs.
- Meinander, M., 1972. A revision of the family Coniopterygidae (Planipennia). *Acta zool. fenn.* 136: 1-357, 223 figs.
- Montague, P. D., 1914. A report on the fauna of the Monte Bello Islands. *Proc. Zool. Soc. Lond.* 1914(3): 625-675, pls. 1-IV.
- New, T. R., 1980. A revision of the Australian Chrysopidae (Insecta: Neuroptera). *Aust. J. Zool. suppl. ser.* 77: 1-143, 552 figs.
- New, T. R. (in press). The egg and first instar larva of *Italochrysa insignis* (Neuroptera, Chrysopidae). *Aust. ent. Mag.*
- Serventy, D. L. and Marshall, A. J., 1964. A natural history reconnaissance of Barrow and Monte Bello Islands, 1958. *C.S.I.R.O. Tech. Pap. Div. Wildl. Res.*